

NOVEMBER/DECEMBER 2025

**23UMB31 — MOLECULAR BIOLOGY AND
MICROBIAL GENETICS**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are uses of DNA ligase?
2. Short note on bidirectional replication.
3. List out general transcription Factors.
4. Define DNA methylation.
5. What are the mutagenic agents?
6. Write about nucleotide repair.
7. Define – F - Plasmids.
8. Describe the bacteriophage.
9. Write a short note on non composite transposons.
10. Add notes on conjugation mechanisms.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Write note on different forms of DNA.
Or
(b) Discuss the organization of genomes in prokaryotes.
12. (a) Discuss gene expression.
Or
(b) Describe about 'ara' operon.
13. (a) Discuss - Mutation and its types.
Or
(b) Describe DNA damage and repair.
14. (a) Give account of yeast 2μ plasmids.
Or
(b) Write an account on virulent phage.
15. (a) Give detailed account on transposons.
Or
(b) Discuss – conjugation.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Brief account on eukaryotic genetic material.
17. Detailed account on 'trp' operon
18. Discuss about the detection of mutation and isolation of mutants.
19. Brief account on the structure of lambda phage.
20. Describe about classes of transposable elements